

ABSTRACT OF THE DISCLOSURE

Fuel cell having: (a) an anode; (b) a cathode; (c) a polymer electrolyte membrane placed between the anode and the cathode which has at least one polyolefin grafted with a side chain containing proton conductive functional groups; wherein said fuel cell has a value of cell resistance at 90°C not higher than $0.30 \Omega \text{ cm}^2$, preferably having between $0.2 \Omega \text{ cm}^2$ and $0.25 \Omega \text{ cm}^2$, more preferably between $0.05 \Omega \text{ cm}^2$ and $0.20 \Omega \text{ cm}^2$; a value of cell resistance at 20°C differing from the value of cell resistance at 90°C of an amount not higher than 90%, preferably not higher than 70%, more preferably not higher than 50%, with respect to the value of cell resistance at 90°C. Preferably, said fuel cell is a direct methanol fuel cell (DMFC).